

REMARKS

The present application had claims 1-17 pending. Claims 8-15 and 17 have been withdrawn from consideration but not yet canceled. Claims 1, 13 and 16 have been amended herein and claim 3 has been canceled. Accordingly, claims 1, 2, 4-7 and 16 are presently under examination.

The support for the amendment of claim 1 may be found in originally-pending claim 3 and on page 8, lines 3-5, of the specification (*"It is advantageous for the sealing material to overlap the ion-conducting membrane at the edge to a width of at least 1mm"*) and on page 5, line 36, to page 6, line 2, of the specification (*"A feature of the catalyst-coated membranes (CCMs) of the invention is that they comprise a sealing material which is applied on one side in the edge region of the ion-conducting membrane"*).

The remaining amendments are relatively minor in nature and were made to correct typographical errors or to improve the clarity of the claim language. None of the amendments introduce new matter to the subject application.

In the December 9, 2010 Office Action, the Examiner rejects claims 1-7 and 16 under 35 USC §102(b) as allegedly being anticipated by Koschany, *et al.* (US Patent No. 6,475,656)

Applicants disagree with the Examiner's position, but nevertheless have added additional limitations to independent claim 1 to further distinguish the claimed invention from the cited reference. Specifically, claim 1 now requires that the sealing material overlaps the membrane on one side of the membrane – either front or reverse side – and that the sealing material circumferentially overlaps the membrane in the edge region to a width of at least 1mm. These features are not disclosed or taught in the Koschany reference.

Koschany discloses a "five-layer MEA", consisting of an anode, a cathode, the respective anode and cathode catalyst layers and the membrane in the center (see Koschany, col. 1, lines 25-36). The electrodes used in Koschany are basically gas diffusion electrodes of carbon paper (Koschany, col. 3, lines 18-25). These features are further documented in the figures and accompanying descriptions in Koschany.

In contrast to Koschany, amended claim 1 is directed to a 2- or 3-layer catalyst coated membrane (CCM) - not a five-layer MEA. Additionally, claim 1 now specifies that the sealing material overlaps the ion conducting membrane on one side and that the overlap is in the edge region and to a width of at least 1 mm. Koschany does not disclose these features.

Contrary to the presently claimed invention (which requires that the sealing material overlaps the membrane), in Koschany the sealing material **penetrates** the porous electrodes (see Koschany, col. 3, line 60, to col. 4, line 3). Therefore, the sealing material in Koschany contacts the membrane on both sides, not only on one side as required by the present invention. Moreover, Koschany in fact does not explicitly teach that the sealing material contacts the ionomer membrane. The reference only refers to the sealing edge as a whole. See Koschany, col. 7, line 62 *et seq.* The contact area of the sealing material in edge region of the membrane (if any!!) depends on the porosity of the electrode material.

In sum, it is clear that Koschany does not anticipate the presently claimed invention as defined by the amended claims set forth above. Koschany fails to disclose or teach several claim elements now present in amended claim 1 – including, *inter alia*, the element that the sealing material overlaps the ion-conducting membrane; the element that the sealing material overlaps only on one side of the membrane; and the element that the sealing material overlaps the membrane circumferentially in the edge region to a width of at least 1mm. The absence of these claim elements in Koschany (even the absence of just one of these elements) precludes a finding of anticipation.

Applicants also wish to point out that this view is supported by the Written Opinion of the International Searching Authority issued in the corresponding PCT application. (The Opinion was submitted in an IDS dated April 19, 2007 filed in connection with the present application). In the Opinion, the PCT examiner specifically considered the Koschany reference and concluded that dependent claim 3 (which added the limitation that the sealing material overlaps the membrane circumferentially in the edge region on one side to a width of at least 1mm) was novel and contained an inventive step. See the Written Opinion, the "Novelty" section on page 4, lines 7-9 of the section: *"The subject-matter of claims 3 and 9 is novel because the features of a sealing material contacting the membrane in an edge region of at least 1mm on one side has not been disclosed in any cited document."* See also the "Inventive step" section bridging page 4 and page 5: *"Document D1 (Koschany) is considered to represent the closest prior art, and differs from the subject-matter of claims 3 and 9 in that the width of the sealing region is not disclosed and the anode and cathodes are not coated on the membrane. It is not obvious for the skilled person starting from D1 to define the minimum sealing width when using an already coated membrane."*

In closing, the Applicants wish to emphasize that the objective of the present invention is to provide an inexpensive and simple process for providing 2- or 3-layer CCMs containing an integrated sealing material (see the specification, page 5, lines 19-28). It was surprisingly found that a certain depth of overlap is advantageous. This feature provides a gas-tight, strong and durable bonding of components (see page 8, lines 3-5 and lines 10-11, of the specification).

The differences between the presently claimed invention and Koschany are numerous and include, for example, the fact that the present invention is directed to the manufacture of a catalyst-coated membrane (not a 5 layer MEA); the present invention involves the single-sided application of sealing material; and the present invention has a sealing material overlap of minimum 1 mm width in edge region.

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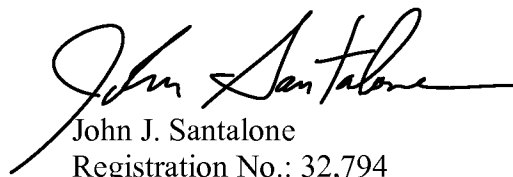
The remaining pending claims all dependent from, and contain all the limitations of, independent claim 1, and thus are patentable over the Koschany reference for the same reasons as outlined above.

In light of the amendments and remarks above, Applicants request reconsideration and withdrawal of the rejection under 35 U.S.C. §102(b) set forth in the December 9, 2010 Office Action and respectfully solicit allowance of the present application.

No fee is believed to be required in connection with the filing of this response, other than the fee for the requested two-month extension of time. If any fee is deemed necessary, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 50-5371.

If the Examiner has any questions regarding the present application, the Examiner is cordially invited to contact Applicants' attorney at the telephone number provided below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "John J. Santalone", with a long horizontal flourish extending to the right.

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